In re Patent Application of
GORSUCH ET AL.
Serial No. **Not Yet Assigned**
Filed: **Herewith**
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In the Specification:

Please replace the paragraph beginning at page 1, line 2, with the following rewritten paragraph:

This application is a Continuation of pending U.S. Application No. 10/345,791 filed January 16, 2003 entitled "Dynamic Bandwidth Allocation to Transmit a Wireless Protocol Across a Code Division Multiple Access (CDMA) Radio Link, which is a Continuation of U.S. ~~Application No. 09/596,425 filed June 19, 2000, now U.S.~~ Patent No. 6,526,281 entitled "Dynamic Bandwidth Allocation to Transmit a Wireless Protocol Across a Code Division Multiple Access (CDMA) Radio Link," which in turn is a Continuation of U.S. ~~Application No. 08/992,760 filed December 17, 1997, now U.S.~~ Patent No. 6,081,536 entitled "Dynamic Bandwidth Allocation to Transmit a Wireless Protocol Across a Code Division Multiple Access (CDMA) Radio Link," which itself claims the benefit of U.S. Provisional Application No. 60/050,338 filed June 20, 1997 entitled "Dynamic Bandwidth Allocation to Transmit a Wireless Protocol Across a Code Division Multiple Access (CDMA) Radio Link," and U.S. Provisional Application No. 60/050,277 filed June 20, 1997 entitled "Protocol Conversion and Bandwidth Reduction Technique Providing Multiple nB+D ISDN Basic Rate Interface Links Over a Wireless Code Division Multiple Access Communication System," the entire teachings of all of which are incorporated herein by reference.

Please delete the Summary of the Invention section beginning on page 4, line 6 in its entirety and add the following Summary of the Invention section:

SUMMARY OF THE INVENTION

In view of the foregoing background, an object of the present invention is to provide high speed data and voice service over standard wireless connections via a unique integration of ISDN protocols and existing cellular signaling such as is available with Code Division Multiple Access (CDMA) type digital cellular systems.

This and other objects, advantages and features in accordance with the present invention are provided by a base station for providing wireless communication of digital signals over a plurality of communication paths. The digital signals may be communicated using at least one radio frequency channel via Code Division Multiple Access (CDMA) modulated radio signals. The base station comprises a wireless transceiver for establishing a communication session over a first digital communication path, and a bandwidth management module is connected to the wireless transceiver.

The bandwidth management module may allocate a plurality of code channels within the at least one radio frequency channel for exchanging digital signals over the first digital communication path during the communication session. The plurality of code channels may include at least one traffic portion that is established for a predetermined time and at least one control portion that is continuously available. A number of code channels allocated to the traffic portion may change during the communication session based upon bandwidth requirements.

The bandwidth management module may reallocate the at least one traffic portion from the first digital communication path to a second digital communication path if an extension of time is not requested from the base station

over the first digital communication path for the at least one traffic portion, or if the base station no longer has digital signals to transmit over the first digital communication path via the at least one traffic portion. However, the at least one reallocated traffic portion may appear as though it is still continuously available to the first digital communication path.

The number of allocated code channels may change during the communication session. The bandwidth management module may change the number of code channels allocated to the at least one traffic portion based on requests received over the first or second first digital communication paths via the at least one control portion of the communication session.

The bandwidth management module may change the number of code channels allocated to the at least one traffic portion based on its need to transmit digital signals over the first or second digital communication paths. Alternatively, the bandwidth management module may further allocate the code channels based upon a quality of service associated with the first and second digital communication paths. The quality of service is based upon at least one of throughput, data rate, latency and jitter.

The at least one traffic portion and the at least one control portion may be multiplexed on a same code channel, or they may be on separate code channels. The bandwidth management module may reallocate the at least one traffic portion from the second digital communication path back to the first digital communication path if a request to transmit digital signals is received via the at least one control portion over the first digital communication path. Alternatively, the bandwidth management module may reallocate

the at least one traffic portion from the second digital communication path back to the first digital communication path if there is no longer a need to transmit digital signals over the second digital communication path.

The digital signals may comprise at least one of voice and data signals. The wireless communication of digital signals may be performed with a first subscriber unit over the first digital communication path, and with a second subscriber unit over the second digital communication path. The at least one radio frequency channel may comprise a first radio frequency channel for establishing a forward code channel between the wireless transceiver and the first subscriber unit, and a second radio frequency channel for establishing a reverse code channel between the first subscriber unit and the wireless transceiver. The bandwidth management module may assign both the forward and reverse code channels. The forward and reverse code channels may be multiplexed on a single radio frequency channel, or they may be on different radio frequency channels.

Another aspect of the present invention is directed to a subscriber unit for providing wireless communication of digital signals between terminal equipment connected therewith and a first digital communication path. The digital signals may be communicated using at least one radio frequency channel via Code Division Multiple Access (CDMA) modulated radio signals. The subscriber unit may comprise a wireless transceiver for establishing a communication session over the first digital communication path, and a bandwidth management module is connected to the wireless transceiver.

The bandwidth management module may receive over the

first digital communication path a plurality of allocated code channels within the at least one radio frequency channel to exchange digital signals during the communication session. The plurality of allocated code channels may include at least one traffic portion that is established for a predetermined time and at least one control portion that is continuously available. A number of code channels allocated to the traffic portion may change during the communication session based upon bandwidth requirements.

If the bandwidth management module does not request an extension of time from over the first digital communication path for the at least one traffic portion, or if there is no longer has a need to transmit digital signals to the subscriber unit over the first digital communication path, then the at least one traffic portion is reallocated to a second digital communication path associated with a second subscriber unit. A spoofing module may be connected to the bandwidth management module so that the reallocated traffic portion appears as though it is still continuously available to the wireless transceiver over the first digital communication path.

Yet another aspect of the present invention is directed to a digital communication system comprising base stations and subscriber units as defined above.